REMARKS

Claims 1 and 9 have been amended. Withdrawn claims 14-20 have been canceled. Claims 1-13 are currently pending in this application. Applicants reserve the right to pursue the original and other claims in this and other applications.

The Title has been amended to more closely conform to the claims currently pending in the application.

The Specification has been amended to correct typographical errors. The thickness of the reflective layer was erroneously listed as being 800 nm to 3000 nm, more preferably 1000 nm to 2200 nm. The thickness should be 80 nm to 300 nm, more preferably 100 nm to 220 nm, as in the amended paragraph. An amendment to correct an obvious error does not constitute new matter where one skilled in the art would not only recognize the existence of error in the specification, but also the appropriate correction. MPEP 2163.07(II). This is the case for the current amendment.

First, in Example 1, the thickness of the reflective layer is 140 nm. (Specification, pg. 30, ln. 8). Further, the thicknesses of the rest of the layers in the recording medium are of the same order of magnitude as that of the corrected thickness of the reflective layer. The lower protection layer has a thickness of 40 nm to 200 nm. (Specification, pg. 19, ln. 8-1). The recording layer has a thickness of 10 nm to 25 nm. (Specification, pg. 15, ln. 4-11). The upper protection layer has a thickness of 5 nm to 50 nm. (Specification, pg. 21, ln. 5-7). Accordingly, the error in the thickness of the reflective layer, as well as the appropriate correction, would have been obvious to one skilled in the art and should not be considered new matter. Claim 9 has also been amended to conform to this correction.

Description of the Claimed Invention:

The claimed invention relates to an optical information recording medium (CD-RW) that can undergo direct overwriting at high speeds and has sufficient storage reliability. Claim 1, as amended, recites an "optical information recording medium" comprising a "transparent substrate," a "recording layer disposed on the transparent substrate," and a "reflective layer disposed on the recording layer." Claim 1 also requires that "the optical information recording medium [be] capable of performing, at a linear recording velocity of 28.8 m/s to 33.6 m/s, at least one of recording, erasing and rewriting information by irradiating and scanning with focused light to thereby form and erase recording marks on the recording layer." Additionally, "the recording layer comprises at least one of alloys and intermetallic compounds each mainly comprising Ga, Ge, Sb, and Te in a compositional ratio represented by the following formula: $Ga_xGe_y(Sb_zTe_{1-z})_{1-x-y}$ wherein x, y and z each represent an atomic ratio of a positive real number less than 1 and satisfy the following conditions: $0.02 \leq x \leq 0.06$, $0.01 \leq y \leq 0.06$, $0.80 \leq z \leq 0.86$, $x \geq y$, $x+y \leq 0.1$."

The base material for the recording layer is an eutectic composition of SbTe of the formula Sb_zTe_{1-z} where the ratio z must be 0.80 or more in order to achieve direct overwriting at a speed of 28.8 m/s to 33.6 m/s. (Specification, ¶[0037]). The ratio z must also not exceed 0.86 in order to ensure a storage life of 1000 hours or more at 70° C. (Specification, ¶[0037]). The recording layer of the invention includes Ga in order to concurrently yield recording at a high speed and easy initialization. (Specification, ¶[0041]). The recording layer of the invention includes Ge in order to increase the temperature-dependency of crystallization. (Specification, ¶[0042]). This allows the recording medium to have excellent erasing properties at high speed, namely excellent overwriting properties and high stability of recorded marks. (Specification, ¶[0042]).

Rejections Under 35 U.S.C. §§ 102 and 103:

Claims 1-13 stand rejected under 35 U.S.C. §§ 102 and 103 over several prior art references. Each rejection and reference is addressed individually below, but Applicants respectfully submit that overall the cited references do not disclose, teach or suggest an "optical information recording medium ... capable of performing, at a linear recording velocity of 28.8 m/s to 33.6 m/s, ... recording, erasing and rewriting information" as recited in amended claim 1.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Harigaya et al. (U.S. Patent Application Pub. No. 2002/0098445) ("Harigaya '445"). Reconsideration is respectfully requested.

Harigaya '445 discloses a phase-change optical recording medium with a maximum recording linear velocity capability of up to 20 m/s and more preferably 6.5 m/s to 17.5 m/s. (¶[0055]). Harigaya '445 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Harigaya '445. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-4, 6-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harigaya '445. Reconsideration is respectfully requested.

The claimed invention also would not be obvious in view of Harigaya '445. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP § 2141.02(VI). Harigaya '445 states that a maximum recording linear velocity of 20 m/s is preferred. (¶[0055]). Thus, a linear recording velocity of 28.8 m/s to 33.6 m/s would not be obvious over Harigaya '445. Accordingly, for at least this reason, claims 1-4, 6-8 and 10-13 are not obvious in

view of Harigaya '445. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3-8 and 12-13 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yamada et al. (U.S. Patent Application Pub. No. 2003/0214902) ("Yamada '902"). Reconsideration is respectfully requested.

Yamada '902 discloses an optical recording medium capable of performing at a recording linear velocity of up to 28.8 m/s. (¶[0262]). Yamada '902 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3-8 and 12-13 are allowable over Yamada '902. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yamada et al. (U.S. Patent Application Pub. No. 2002/0110063) ("Yamada '063"). Reconsideration is respectfully requested.

Yamada '063 discloses a phase change type optical recording medium capable of performing at a recording linear velocity of up to 24.0 m/s. (Table 1). While Yamada discusses recording linear velocities of up to 48 m/s (¶[0283]), this discussion relates to recording and erasing, not to direct overwriting. Yamada '063 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Yamada '063. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yamada et al. (U.S. Patent Application Pub. No. 2003/0008236) ("Yamada '236"). Reconsideration is respectfully requested.

Yamada '236 discloses an optical information medium capable of performing at a recording linear velocity of up to 16.75 m/s. (¶[0134]). Yamada '236 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 6-8 and 12-13 are allowable over Yamada '236. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3-8 and 12-13 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Harigaya et al. (U.S. Patent No. 6,770,346) ("Harigaya '346"). Reconsideration is respectfully requested.

Harigaya '346 discloses a phase-change optical recording medium with a maximum recording linear velocity capability of 3.5 m/s to 20 m/s and more preferably 7.0 m/s to 17.5 m/s. (col. 3, lines 52-59). Harigaya '346 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3-8 and 12-13 are allowable over Harigaya '346. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harigaya '346. Reconsideration is respectfully requested.

The claimed invention also would not be obvious in view of Harigaya '346. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP § 2141.02(VI). Harigaya '346 states that a maximum recording linear velocity of 20 m/s is preferred. (col. 3, lines 52-59). Thus, a linear recording velocity of 28.8 m/s to 33.6 m/s would not be obvious over Harigaya '346. Accordingly, for at least this reason, claims 1-8 and 10-13 are not

obvious in view of Harigaya '346. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yamada et al. (EP 1193696) ("Yamada EP 1193696"). Reconsideration is respectfully requested.

Yamada EP 1193696 discloses a phase change type optical recording medium capable of performing at a recording linear velocity of up to 28.8 m/s. (¶[0123]). While Yamada EP 1193696 discusses recording linear velocities of up to 48 m/s (¶[0261]), this discussion relates to recording and erasing, not to direct overwriting. Yamada EP 1193696 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Yamada EP 1193696. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-4, 6-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada EP 1193696. Reconsideration is respectfully requested.

Yamada EP 1193696 does not disclose direct overwriting, but discusses only erasing and recording of rewritable recording medium. Yamada EP 1193696 does not disclose, teach or suggest direct overwriting at high speeds. Accordingly, for at least this reason, claims 1-4, 6-8 and 10-13 are not obvious in view of Yamada EP 1193696. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nobunuki et al. (EP 1056077) ("Nobunuki"). Reconsideration is respectfully requested.

Nobunuki discloses a rewritable compact disk capable of performing at a recording linear velocity of up to 15.4 m/s (12 times the reference velocity of 1.4 m/s). Nobunuki does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Nobunuki. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Suzuki et al. (JP 2002-096560) ("Suzuki JP 2002-096560"). Reconsideration is respectfully requested.

Suzuki JP 2002-096560 discloses an optical recording medium capable of performing at a recording linear velocity of up to 17 m/s. (¶[0018]). Suzuki JP 2002-096560 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Suzuki JP 2002-096560. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Tashiro et al. (JP 2003-257077) ("Tashiro"). Reconsideration is respectfully requested.

Tashiro discloses a rewritable optical recording medium capable of performing at a recording linear velocity of up to 11 m/s. (¶[0052]). Tashiro does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Tashiro. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1, 3, 4, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Harigai et al. (JP 2003-246140) ("Harigai"). Reconsideration is respectfully requested.

Harigai discloses a phase-transition-type optical disk capable of performing at a recording linear velocity of up to 15 m/s. (¶[0015]). Harigai does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1, 3, 4, 6-8 and 12-13 are allowable over Harigai. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-3, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Muira et al. (JP 2002-331758) ("Muira"). Reconsideration is respectfully requested.

Muira discloses an optical information disclosing medium capable of performing at a recording linear velocities of 7 m/s – 17 m/s. (¶[0004]). Muira does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1-3, 6-8 and 12-13 are allowable over Muira. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-3, 6-8 and 12-13 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Suzuki et al. (JP 2002-347349) ("Suzuki JP 2002-347349"). Reconsideration is respectfully requested.

Suzuki JP 2002-347349 discloses an optical recording medium capable of performing at a recording linear velocity of up to 18 m/s. (¶[0006]). Suzuki JP 2002-347349 does not disclose direct overwriting at linear recording velocities between 28.8 m/s and 33.6 m/s. Accordingly, for at least this reason, claims 1-3, 6-8 and 12-13 are

allowable over Suzuki JP 2002-347349. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harigaya '445 or Yamada EP 1193696, in view of Kunitomo et al. (U.S. Patent Application Pub. No. 2001/0003641) ("Kunitomo '641) and Takahashi et al. (U.S. Patent No. 6,153,355) ("Takahashi '355"). Reconsideration is respectfully requested.

For at least the reasons stated above, the claimed invention would not be obvious in view of Harigaya '445 or Yamada EP 1193696. Kunitomo '641 is relied upon to disclose reflective layers having thicknesses of up to 1000 nm (Office Action, pg. 11) and does not disclose a recording medium with high speed overwriting capabilities. Further, according to amended claim 9, the reflective layer has a thickness of only 80 nm to 300 nm. Takahashi '355 is relied upon to disclose GeSbTe recording layers with Mn, Sn, and Ag as additives in amounts of less than 5%. (Office Action, pg. 11). Takahashi does not disclose a recording medium with high speed overwriting capabilities. Therefore, the claimed invention would also not be obvious in view of Kunitomo '641 of Takahashi '355. Further, the combination of the references does not disclose, teach or suggest a recording medium with direct overwriting capabilities at linear recording velocities between 28.8 m/s and 33.6 m/s since each reference teaches only recording velocities below 28.8 m/s. Accordingly, claims 1-13 are not obvious in view of the cited combination of references. Applicants respectfully request the rejection be withdrawn and the claims allowed.

Rejections for Non-Statutory Double Patenting

Claims 1-4, 6-8 and 10-13 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of Harigaya

et al. (U.S. Patent No. 6,790,592) ("Harigaya '592"). Claims 1-8 and 10-13 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of Harigaya '346. Claims 1-4, 6-8 and 10-13 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 11/130568, Kibe et al. (U.S. Patent Application Pub. No. 2005/0254410) ("Kibe '410"). Reconsideration is respectfully requested.

Attached hereto are Terminal Disclaimers referring to U.S. Patent No. 6,790,592, U.S. Patent No. 6,770,346, and U.S. Application No. 11/130568. The nonstatutory obviousness-type double patenting rejections should be withdrawn.

Payment of the $390.00 statutory disclaimer fees is by credit card. Form PTO-2038 is attached. The Director is hereby authorized to charge Deposit Account No. 04-1073 for any additional fees required to effect the proper filing of this communication, under Order No. H6790.0004/P004.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Dated: September 22, 2006

Respectfully submitted,

By Jennifer M. McCue

Mark J. Thronson
Registration No.: 33,082
Jennifer M. McCue
Registration No.: 55,440
DICKSTEIN SHAPIRO LLP
1825 Eye Street, NW
Washington, DC 20006-5403
(202) 420-2200
Attorneys for Applicant